

Appl. No. 10/805,048
Amdt. Dated Jan. 12, 2006
Reply to Office Action of November 30, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 (canceled).

Claim 2 (canceled).

Claim 3 (currently rewritten): ~~[[The]] A driving apparatus according to claim 1 for generating a drive current, comprising:~~

a first square wave generator directed to accomplish timing control of the drive current, the first square wave generator comprising a first comparator, a low frequency sawtooth wave generator, and a timing control signal source, wherein the low frequency sawtooth wave generator is connected to one input of the first comparator, and the timing control signal source is connected to another input of the first comparator;

a second square wave generator directed to accomplish amplitude control of the drive current, wherein the second square wave generator comprising comprises a second comparator, a high frequency sawtooth wave generator, a variable amplifier, and an amplitude control signal source, and wherein one input of the variable amplifier is connected to the output of the first square wave generator, another input of the variable amplifier is connected to the amplitude control signal source, an output of the variable amplifier is connected to one input of the second comparator, and the high frequency sawtooth wave generator is connected to another input of the

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second comparator;

a field effect transistor; and

a power source;

wherein an output of the second square wave generator is connected to a gate of the field effect transistor, a current clamping resistor is provided between a source of the field effect transistor and the power supply, and a drain of the field effect transistor generates the drive current to drive a desired load.

Claim 4 (previously amended): The driving apparatus according to claim 3, wherein the variable amplifier is a photosensitive resistor amplifier.

Claim 5 (previously amended): The driving apparatus according to claim 4, wherein the photosensitive resistor amplifier comprises a light emitting diode, a photosensitive resistor, an operational amplifier, a reference signal source, and a pair of resistors, the light emitting diode is connected to the reference signal source and illuminates the photosensitive resistor, which is connected between a negative input and an output of the operational amplifier, one of the resistors is connected between the negative input of the operational amplifier and an input signal source, and the other resistor couples a positive input of the operational amplifier and ground.

Claim 6 (canceled).

Claim 7 (canceled).

Claim 8 (currently amended): ~~[[The]] A driving apparatus according to claim 6, comprising:~~

a first square wave generator directed to accomplish timing control of a

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drive current, the first square wave generator comprising a first comparator, a low frequency sawtooth wave generator, and a timing control signal source, wherein the low frequency sawtooth wave generator is connected to one input of the first comparator, and the timing control signal source is connected to another input of the first comparator;

a second square wave generator directed to accomplish amplitude control of the drive current, wherein the second square wave generator comprises a second comparator, a high frequency sawtooth wave generator, a variable amplifier, and an amplitude control signal source, and wherein one input of the variable amplifier is connected to the output of the first square wave generator, another input of the variable amplifier is connected to the amplitude control signal source, an output of the variable amplifier is connected to one input of the second comparator, and the high frequency sawtooth wave generator is connected to another input of the second comparator;

a field effect transistor; and

a power source;

wherein an output of the second square wave generator is connected to a gate electrode of the field effect transistor, the power source is connected to a source electrode of the field effect transistor, and a drain electrode of the field effect transistor generates a variable drive current.

Claim 9 (currently amended): A driving apparatus for generating a drive current, comprising:

a first square wave generator directed to accomplish timing control of the drive current;

a second square wave generator directed to accomplish amplitude control of the drive current, wherein the second square wave generator

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comprises a second comparator, a high frequency sawtooth wave generator, a variable amplifier, and an amplitude control signal source, one input of the variable amplifier is connected to an output of the first square wave generator, another input of the variable amplifier is connected to the amplitude control signal source, an output of the variable amplifier is connected to one input of the second comparator, and the high frequency sawtooth wave generator is connected to another input of the second comparator;

a field effect transistor; and

a power source;

wherein an output of the second square wave generator is connected to a gate of the field effect transistor, the power source is connected to a current clamping resistor is provided between a source of the field effect transistor ~~source and the power supply~~, and a drain of the field effect transistor generates the drive current to drive a desired load.

Claim 10 (previously added): The driving apparatus according to claim 9, wherein the variable amplifier is a photosensitive resistor amplifier.

Claim 11 (previously added): The driving apparatus according to claim 10, wherein the photosensitive resistor amplifier comprises a light emitting diode, a photosensitive resistor, an operational amplifier, a reference signal source, and a pair of resistors, the light emitting diode is connected to the reference signal source and illuminates the photosensitive resistor, which is connected between a negative input and an output of the operational amplifier, one of the resistors is connected between the negative input of the operational amplifier and an input signal, and the other resistor couples a positive input of the operational amplifier and ground.